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NORTHEASTERN RESEARCH NOTES

NORTHEASTERN FOREST EXPERIMENT STATION

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COVER CROPS NO SUBSTITUTE FOR CULTIVATION IN HYBRID POPLAR PLANTINGS

Results at Beltsville, Md.

Some hybrid poplars being tested at the Beltsville Experimental Forest in Maryland have grown as much as 11 feet during the first year from unrooted cuttings. Such rapid growth is possible when the cuttings are planted on good sites that have been plowed and harrowed before planting.

Cultivation is also necessary. Earlier studies have shown that competing weeds and grasses either kill or greatly reduce the growth of young hybrid poplars. Three and sometimes four cultivations are necessary during the first year to keep the weeds under control.

A study was begun in the spring of 1950 to find out if the job of cultivating could be avoided by planting along with the poplar cuttings a cover crop that would satisfactorily

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control weed growth without inhibiting the growth of the poplars.

Five poplar clones were planted with 10 different cover crops. The cover crops used were buckwheat, cowpea, crotalaria, lespedeza, millet, Italian rye grass, perennial rye grass, rye, and soybean. They were planted in the spring along with the poplar cuttings, except winter rye, which was sown in the fall. Control plots were established for purposes of comparison; they were cultivated during the first year.

At the end of the second growing season the heights of the trees receiving the various treatments were measured and compared.

Results: Although the cover crops kept out weeds, they inhibited the growth of the hybrid poplars. The average growth of all the poplars in the cultivated control plots was more than twice the growth of the trees grown with the cover crops. The average height growths are summarized in table 1.

Table 1.--Average height growth of hybrid poplars grown with various cover crops, in feet

Cover crop	Poplar clone					Average, all clones
	OP-46	OP-51	OP-206	OP-214	OP-333	
Buckwheat	1.9	2.2	3.0	3.2	2.0	2.5
Cowpea	2.2	2.2	4.1	3.8	2.2	2.9
Crotalaria	2.8	2.4	4.0	4.1	2.7	3.2
Lespedeza	2.8	2.4	2.6	3.4	2.3	2.7
Millet	1.9	2.2	3.0	2.8	1.3	2.2
Rye (no fertilizer)	2.1	3.1	2.7	3.1	2.0	2.6
Rye (fertilizer)	2.4	2.5	3.5	4.1	2.5	3.0
Italian rye grass	2.4	2.1	3.6	3.6	2.4	2.8
Perennial rye grass	2.7	1.7	3.7	3.6	2.2	2.8
Soybean	1.7	2.2	3.4	4.3	1.9	2.7
Average, all cover crops	2.3	2.3	3.4	3.6	2.2	2.7
Control (cultivated)	4.5	4.8	7.5	6.7	4.3	5.6

Conclusion: All the cover crops tested inhibited the growth of hybrid poplars. Good site preparation and cultivation during the first growing season is still the most satisfactory method of establishing hybrid poplar plantations from unrooted cuttings.

--H. F. FORD and M. J. WILLIAMSON

Results at Williamstown, Mass.

In the spring of 1950 eight different cover crops were tried in plantations of five hybrid poplar clones on the Hopkins Memorial Experimental Forest at Williamstown, Mass.

The cover crops failed to keep out weeds and the growth of the poplars was retarded. At the close of the second growing season the poplars that had been cultivated had grown almost twice as much as the poplars grown with cover crops. The average height of the trees in the cultivated plots was 5.25 feet, in the cover-crop plots 2.43 feet.

Of the cover crops used, brome and millet retarded poplar growth the most, lotus and lespedeza the least. Other crops used were lupine, soybean, wheat, and buckwheat.

--F. E. CUNNINGHAM